Notice

Description DE2912349

Description.

The invention concerns a method for Bestiouung the moisture condition of the human skin by measuring the electrical conductivity of the Skin, by a probe with two mounted in a fixed distance from each other Wontaktelektroden with the llaut brought into contact, and the Ness word on an electrical circuit in a measuring-controlled Anzeigeinstrument read wird.Sie also relates to a device Implementation the procedure nit two in one fixed contact spaced electrodes comprising a probe and the electrical conductivity of the skin between the Kontakteloktroden measured electrical circuit with a meter.

A method of the generic type is known from DE-OS 27 46 145 known in which a Measuring device with a probe is described in which the two contact electrodes in the form of concentric rings are rigidly mounted.

The electrical measuring circuit comprises a Wheatstone Scheme bridge circuit, by adjusting the vernder-Baren resistance by placing the probe on the skin Bridge circuit adjusted by hand shall ~ The position of the development Tumming resistor represents a measure of the Moisture condition the skin dar.

in the determination of skin hydration by this known process problems occur in several ways. ZR this requires the measurement process except the placement of the head to touch the skin, the manual setting of the Ren-voränderba Resistance for the purpose of comparison of the circuit. he- Ner, it has been considerate, and therein lies a very serious disadvantage that the values measured in this way are reproducible moisture for the skin.

but to a considerable extent Fluctuations subject. I), ie Spread this measured value fluctuations can be up to about 20 percent of the actual value. Since the water content of the skin normally 50-75 % lies, ie with a skin 5o % Moisture as already extremely dry skin and one with 75% moisture than is considered extremely moist. are Measuring fluctuations in the greater magnitude of 20% so high. that can make themselves so that no useful statements.

The invention has for its object, the known Measurement one of the process weiterubilden. that it provides reproducible measuring results with a minimum measurement tolerance. In addition to creating a device that allow the implementation of the inventive method in a simple manner.

The inventive method is that the contact electrodes with a predetermined constant pressure of up to 20 p/cm2 electrode surface, and preferably two se of less than 15 p/cm2 electrode surface, are placed on the skin.

By The inventive method ensures that the measurement accuracy is increased by a factor of more than 10, so that the measurement tolerance of the order of 1% of the effective pets Haltfeuchtigkeit lies.

The effect of the inventive method may be an explanation in the structure of the skin layers and into the water distribution within the Rautschichten . find Nearly three-quarters of the water content of llaut are in fact in the lower layers of the skin, the dermis, while the top layers of skin are very low in water, the causes of the skin layers by flowing current is not at the top area flows along the skin, but that at least the main portion of the stream penetrates the epidermis, and only in the Corium the Stronleitung takes place through transport of electrolytes. Wallrend 20 e of water present in the skin firmly in bound form, are 80 % Of water by 13i.n- degewebsfibrillen bound, or are unbound before in the ground substance or intracellularly. By the pressure of the electrodes, it can move to a displacement of the unbound water content in the skin layers, which is of course a considerable influence on the measurement This effect is turned off when the pressure he making according to has low value.

Preferably, the pressure of the electrodes to the skin around lo p/cm2, which particularly good results are achieved.

Into functional development of novel Expiry Rens, the displayed measurement value of the display device is inside or at the expiration of a predetermined time after placement of the electrodes on the skin, read or recorded.

This is avoided. that there is an uncontrolled change in the moisture content of the skin during the measurement is that can arise when the normal skin of moisture exchange with the surrounding air through the cover with the device containing the electrodes is prevented. It has to be expedient proved that the reading or the acquisition of reading after a time interval of about one is made up several seconds after putting the electrodes on the skin.

The device according to the invention is characterized by a probe with two in fixed spaced electrodes, the electrodes mounted resiliently in the probe and are held by funds. which have a specific pressure of up to 20 p/cm2 Electrode surface guarantee.

In an advantageous Further education The invention is further seen before, that the measuring instrument to an amplifier circuit for current measurement and a function generator for measurement conversion and a display instrument includes being dropped across the test section, a constant DC voltage of less than 10 volts.

Through this Measures the measurement accuracy, the manual by the Adjustment procedure impaired in the known device is further increased. Advantageously. the M are recorded measured value after the predetermined period of time after placement of the sensor to the skin by the electronics of the device, so that changes caused by the accumulation of moisture in the coverage of the measured area largely displayed without influencing the Measurement deserves to be preserved, the purpose of further increasing